South Australian Public Health (Legionella) Regulations 2013

An overview

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SA Health

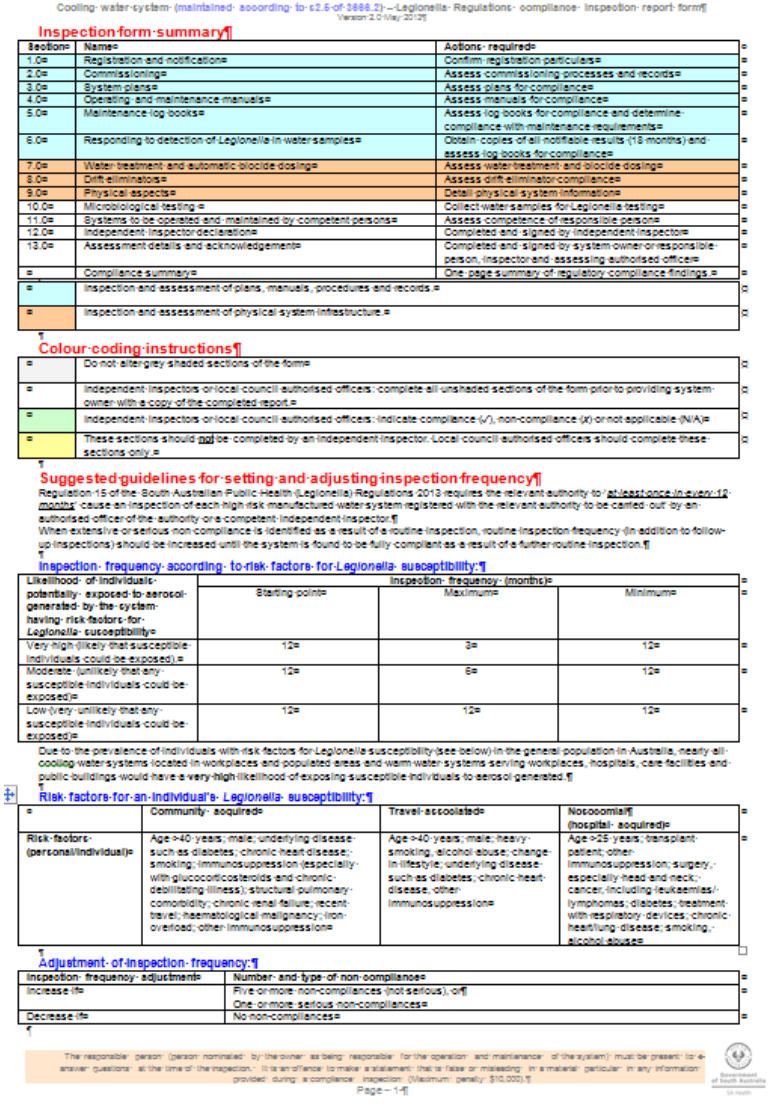
Resources

> www.legislation.sa.gov.au

> www.sahealth.sa.gov.au/legionella

> www.health.sa.gov.au/pehs/legionella-regulations-guidelines.htm

Resources



Cooling water system (maintained according to s2.6 of 3866_2) – Legionella Regulations compliance inspection report form
Version 2.0 May 2013

Inspection form summary

Section	Name	Actions required
1.0	Registration and notification	Confirm registration particulars
2.0	Commissioning	Assess commissioning processes and records
3.0	System plans	Assess plans for compliance
4.0	Operating and maintenance manuals	Assess manuals for compliance
5.0	Maintenance log books	Assess log books for compliance and determine compliance with maintenance requirements
6.0	Responding to detection of *Legionella* in water samples	Obtain copies of all notifiable results (18 months) and assess log books for compliance
7.0	Water treatment and automatic biocide dosing	Assess water treatment and biocide dosing
8.0	Drift eliminators	Assess drift eliminator compliance
9.0	Physical aspects	Detail physical system information
10.0	Microbiological testing	Collect water samples for Legionella testing
11.0	Systems to be operated and maintained by competent persons	Assess competence of responsible person
12.0	Independent inspector declaration	Completed and signed by independent inspector
13.0	Assessment details and acknowledgement	Completed and signed by system owner or responsible person, inspector and assessing authorised officer
	Compliance summary	One page summary of regulatory compliance findings

	Inspection and assessment of plans, manuals, procedures and records.
	Inspection and assessment of physical system infrastructure.

Colour coding instructions

	Do not alter grey shaded sections of the form
	Independent inspectors or local council authorised officers: complete all unshaded sections of the form prior to providing system owner with a copy of the completed report.
	Independent inspectors or local council authorised officers: indicate compliance (✓), non-compliance (x) or not applicable (N/A)
	These sections should not be completed by an independent inspector. Local council authorised officers should complete these sections only.

Suggested guidelines for setting and adjusting inspection frequency

Regulation 15 of the South Australian Public Health (Legionella) Regulations 2013 requires the relevant authority to '*at least once in every 12 months*' cause an inspection of each high risk manufactured water system registered with the relevant authority to be carried out by an authorised officer of the authority or a competent independent inspector.

When extensive or serious non-compliance is identified as a result of a routine inspection, routine inspection frequency (in addition to follow-up inspections) should be increased until the system is found to be fully compliant as a result of a further routine inspection.

Inspection frequency according to risk factors for *Legionella* susceptibility

Likelihood of individuals potentially exposed to aerosol generated by the system having risk factors for *Legionella* susceptibility	Inspection frequency (months)		
	Starting point	Maximum	Minimum
Very high (likely that susceptible individuals could be exposed)	12	3	12
Moderate (unlikely that any susceptible individuals could be exposed)	12	6	12
Low (very unlikely that any susceptible individuals could be exposed)	12	12	12

Due to the prevalence of individuals with risk factors for *Legionella* susceptibility (see below) in the general population in Australia, nearly all cooling water systems located in workplaces and populated areas and warm water systems serving workplaces, hospitals, care facilities and public buildings would have a very high likelihood of exposing susceptible individuals to aerosol generated.

Risk factors for an individual's *Legionella* susceptibility

	Community acquired	Travel associated	Nosocomial (hospital acquired)
Risk factors (personal/individual)	Age >40 years; male; underlying disease such as diabetes; chronic heart disease; smoking; immunosuppression (especially with glucocorticosteroids and chronic debilitating illness); structural pulmonary comorbidity; chronic renal failure; recent travel; haematological malignancy; iron overload; other immunosuppression	Age >40 years; male; heavy smoking, alcohol abuse; change in lifestyle; underlying disease such as diabetes; chronic heart disease, other immunosuppression	Age >25 years; transplant patient; other immunosuppression; surgery, especially head and neck; cancer, including leukaemias/ lymphomas; diabetes; treatment with respiratory devices; chronic heart/lung disease; smoking; alcohol abuse

Adjustment of inspection frequency

Inspection frequency adjustment	Number and type of non-compliance
Increase if	Five or more non-compliances (not serious), or One or more serious non-compliances
Decrease if	No non-compliances

The responsible person (person nominated by the owner as being responsible for the operation and maintenance of the system) must be present to answer questions at the time of the inspection. It is an offence to make a statement that is false or misleading in a material particular in any information provided during a compliance inspection (Maximum penalty: $10,000).

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SA Health

3 – Interpretation

Public Health Fact Sheet #303

Is my heated water system captured under the Legionella Regulations?

South Australian Public Health (Legionella) Regulations 2013

Due to the age, design and modification of some heated water systems, it can be difficult to determine if they are captured under the South Australian Public Health (Legionella) Regulations 2013 (the Legionella Regulations).

This fact sheet has been developed to assist in determining if a heated water system is captured under the Legionella Regulations. It should be read in conjunction with the Legionella Regulations and SA Health's Guidelines for the Control of Legionella in Manufactured Water Systems in South Australia (the Legionella Guidelines).

Warm water systems – why are they a risk?

Warm water systems are typically found in care facilities, such as nursing homes, hospitals and child care centres, where warm water for purposes such as showering, bathing and hand washing is provided at approximately 45°C to prevent scalding.

Warm water provides the ideal temperature for the growth of *Legionella* bacteria, the causative agent of legionellosis (Legionnaires' disease).

When water containing *Legionella* is aerosolised through processes such as showering, there is a risk that it can be inhaled and legionellosis can result. The risk from *Legionella* can be managed through the proper design, installation, operation and maintenance of heated water systems.

To ensure that high risk manufactured water systems (including warm water systems) are designed, operated and maintained in a manner that reduces the risk of *Legionella* colonisation and growth, SA Health introduced the Legionella Regulations and the Legionella Guidelines.

What kinds of systems deliver warm water?

There are two main system designs that result in the automatic delivery of warm water:

- Systems that distribute or recirculate warm water throughout the majority of the system by means of a temperature controlling device or devices, usually located close to the hot water storage tank or water heating device(s). These are often referred to as tepid or tempered warm water systems.
- Systems that deliver hot water ≥60°C to automatic temperature controlling

- Cooling water system
  - Cooling tower
  - Evaporative condenser
- Warm water system
  - Majority of branches
  - Nominal temperature of 45°C
- High risk manufactured water system

6 – Register of high risk manufactured water systems

- HRMWS must be registered with the local council
- Nominate a person responsible for the operation and maintenance
- Have any particulars changed?

7 – Cooling water systems to be fitted with an automatic biocide dosing devise

- Key elements
  - Automatic biocide device is fitted to the system
  - Operating effectively at all times while the system is in operation

- Considerations
  - Is biocide present?
  - Complete water treatment
  - Water chemistry and testing
  - Bleed

8 –Cooling water systems to be fitted with drift eliminators

> Key elements

- Cover the full exhaust air stream
- Prevent air bypass
- Designed for *in situ* cleaning
- Capable of being removed without damage
- Drift loss shall not exceed 0.002% of the maximum design water circulation rate


19.11.2009

9 – Commissioning of high risk manufactured water systems

- Key elements
  - All CWS must comply with s4.7 of AS/NZS 3666.1 before the system is bought into service
  - New cooling water systems
  - New components
  - Ensure the log book is updated

10 – Plans and manuals for HRMWS

> Key elements

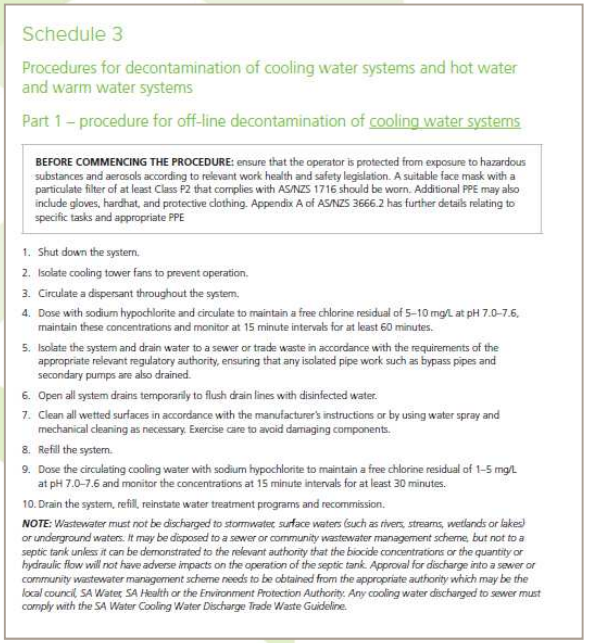
- Plans and manuals are to be kept on the premises

- The plans must show:

System installed before 1st Oct 2009	System installed after 1st Oct 2009
Location of all major components of the system	Location of all parts of the system

10 – Plans and manuals for HRMWS

- Key elements
  - All HRMWS must have operating and maintenance manuals
  - Comply with s2.6.1 of AS/NZS 3666.2
    - Physical details of plant / equipment
    - Water treatment maintenance and management
    - Manufactures recommendations
    - Cleaning, disinfection and emergency decontamination procedure
    - Start up, operating and shut down procedures
    - Maintenance management program



Schedule 3

Procedures for decontamination of cooling water systems and hot water and warm water systems

Part 1 – procedure for off-line decontamination of cooling water systems

BEFORE COMMENCING THE PROCEDURE: ensure that the operator is protected from exposure to hazardous substances and aerosols according to relevant work health and safety legislation. A suitable face mask with a particulate filter of at least Class P2 that complies with AS/NZS 1716 should be worn. Additional PPE may also include gloves, hardhat, and protective clothing. Appendix A of AS/NZS 3666.2 has further details relating to specific tasks and appropriate PPE

1. Shut down the system.
2. Isolate cooling tower fans to prevent operation.
3. Circulate a dispersant throughout the system.
4. Dose with sodium hypochlorite and circulate to maintain a free chlorine residual of 5–10 mg/L at pH 7.0–7.6, maintain these concentrations and monitor at 15 minute intervals for at least 60 minutes.
5. Isolate the system and drain water to a sewer or trade waste in accordance with the requirements of the appropriate relevant regulatory authority, ensuring that any isolated pipe work such as bypass pipes and secondary pumps are also drained.
6. Open all system drains temporarily to flush drain lines with disinfected water.
7. Clean all wetted surfaces in accordance with the manufacturer's instructions or by using water spray and mechanical cleaning as necessary. Exercise care to avoid damaging components.
8. Refill the system.
9. Dose the circulating cooling water with sodium hypochlorite to maintain a free chlorine residual of 1–5 mg/L at pH 7.0–7.6 and monitor the concentrations at 15 minute intervals for at least 30 minutes.
10. Drain the system, refill, reinstate water treatment programs and recommission.

NOTE: *Wastewater must not be discharged to stormwater, surface waters (such as rivers, streams, wetlands or lakes) or underground waters. It may be disposed to a sewer or community wastewater management scheme, but not to a septic tank unless it can be demonstrated to the relevant authority that the biocide concentrations or the quantity or hydraulic flow will not have adverse impacts on the operation of the septic tank. Approval for discharge into a sewer or community wastewater management scheme needs to be obtained from the appropriate authority which may be the local council, SA Water, SA Health or the Environment Protection Authority. Any cooling water discharged to sewer must comply with the SA Water Cooling Water Discharge Trade Waste Guideline.*

11 – HRMWS to be operated and maintained by competent persons

- Key elements
  - The owner of premises must ensure…
  - Person responsible for the operation and maintenance…
  - Knowledgeable in the operation and maintenance of the system
  - Sufficiently competent to ensure the system is operated and maintained as required by the regulations.

12 – Maintenance of cooling water system

- Key elements
  - The system must be maintained in accordance with
    - Section 2.5 of AS/NZS 3666.2 or
    - Section 3 of AS/NZS 3666.3 or
    - A maintenance program approved by the Minister

13 – Maintenance of warm water system

> Key elements

- Water storage areas must be kept ≥60°C at all times
- Water temperature in the storage areas and throughout the system must be measured at least monthly – and recorded in the log book
- Monthly physical inspection to examine the cleanliness and mechanical condition of the system
- Perform a system clean whenever an inspection reveals sludge, slime etc.
- Perform a decontamination of the system at least every 6 months

14 – Maintenance log books

- Key elements:
  - There must be an up to date log book with
    - The details described in AS/NZS 3666.2
    - Micro testing results
    - Cooling towers – the type and quantity of biocide used and dosing frequency
  - The log book must be kept on premises
  - Be available for inspection by an authorised officer
  - The log book must be maintained for 5 years

15 – Annual inspection and microbiological testing

- Key elements
  - Annual inspection
    - Council or independent inspector
  - Collect samples
  - Independent inspections must be completed by a **competent person**

15 – Annual inspection and microbiological testing

- Competent person:
  - is not the owner or person responsible for the operation and maintenance of the system
  - is knowledgeable in the operation and maintenance of high risk manufactured water systems; and
  - is sufficiently competent to ensure that high risk manufactured water systems are operated and maintained as required by these regulations; and
  - has qualifications or training in water treatment of high risk manufactured water systems.

- Conflict of interest

16 – Power of relevant authority to require microbiological testing in other circumstances

- Key elements:
  - Investigating a case of Legionellosis in the near vicinity of a HRMWS or
  - Reason to believe a HRMWS is not being maintained as required by the regulations

17 – Responses to detection of Legionella

- Key elements:
  - ≥1,000 cfu/ml in a cooling water system
  - ≥10 cfu/ml in a warm water system
  - **Immediately shut down the system or decontaminate the system**
    - Prescribed method
    - Method approved by the minister
  - Notify the relevant authority within 24hrs
  - Retest again in 3-7 days

18 – Determinations and approvals

- Key elements
  - Drift eliminators
  - Maintenance regime of a cooling water system
  - Decontamination procedures

20 – Prescribed guidelines

- Key elements
  - Prescribed guidelines can be used to assist in the administration of the act (and regulations)
    - Legionella Guidelines
    - AS/NZS 3666.1
    - AS/NZS 3666.2
    - AS/NZS 3666.3
    - SAA/SNZ HB32

Questions?

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